SEQUENCE LISTING

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Odisis, Mary L.
Hellstrom, Ingegerd
Hellstrom, Karl Erik

(120) SURFACE RECEPTOR ANTIGEN VACCINES

(130) 030033.409

(140) US 09/441,411
(141) 1999-11-16

(160) 26

(170) FastSEQ for Windows Version 4.0

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(213) Artificial Sequence

(220)
(223) PCR primer

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(210) 3
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        35                  40                  45
Leu Tyr Gln Gly Cys Gln Val Val Gln Gly Asn Leu Glu Leu Thr Tyr
    50                  55                  60
Leu Pro Thr Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
65                  70                  75                  80
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Ala Leu Ala Val Leu Asp Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro
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Val Thr Gly Ala Ser Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser
130 135 140
Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Gln Arg Asn Pro Gln
145 150 155 160
Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp Ile Phe His Lys Asn
165 170 175
Asn Gln Leu Ala Leu Thr Leu Ile Asp Thr Asn Arg Ser Arg Ala Cys
180 185 190
His Pro Cys Ser Pro Met Cys Lys Gly Ser Arg Cys Trp Gly Glu Ser
195 200 205
Ser Glu Asp Cys Gln Ser Leu Thr Arg Thr Val Cys Ala Gly Gly Cys
210 215 220
Ala Arg Cys Lys Gly Pro Leu Pro Thr Asp Cys Cys His Glu Gln Cys
225 230 235 240
Ala Ala Gly Cys Thr Gly Pro Lys His Ser Asp Cys Leu Ala Cys Leu
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His Phe Asn His Ser Gly Ile Cys Glu Leu His Cys Pro Ala Leu Val
260 265 270
Thr Tyr Asn Thr Asp Thr Phe Glu Ser Met Pro Asn Pro Glu Gly Arg
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Tyr Thr Phe Gly Ala Ser Cys Val Thr Ala Cys Pro Tyr Asn Tyr Leu
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Ser Thr Asp Val Gly Ser Cys Thr Leu Val Cys Pro Leu His Asn Gln
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Glu Val Thr Ala Glu Asp Gly Thr Gln Arg Cys Glu Lys Cys Ser Lys
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Pro Cys Ala Arg Val Cys Tyr Gly Leu Gly Met Glu His Leu Arg Glu
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Val Arg Ala Val Thr Ser Ala Asn Ile Gln Glu Phe Ala Gly Cys Lys
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Pro Ala Ser Asn Thr Ala Pro Leu Gln Pro Glu Gln Leu Gln Val Phe
385 390 395 400
Glu Thr Leu Glu Glu Ile Thr Gly Tyr Leu Tyr Ile Ser Ala Trp Pro
405 410 415
Asp Ser Leu Pro Asp Leu Ser Val Phe Gln Asn Leu Gln Val Ile Arg
420 425 430
Gly Arg Ile Leu His Asn Gly Ala Tyr Ser Leu Thr Leu Gln Gly Leu
435 440 445
Gly Ile Ser Trp Leu Gly Leu Arg Ser Leu Arg Glu Leu Gly Ser Gly
450 455 460
Leu Ala Leu Ile His His Asn Thr His Leu Cys Phe Val His Thr Val
465 470 475 480
Pro Trp Asp Gln Leu Phe Arg Asn Pro His Gln Ala Leu Leu His Thr
485 490 495
Ala Asn Arg Pro Glu Asp Glu Cys Val Gly Glu Gly Leu Ala Cys His
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Gln Leu Cys Ala Arg Gly His Cys Trp Gly Pro Gly Pro Thr Gln Cys
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Arg Val Leu Gln Gly Leu Pro Arg Glu Tyr Val Asn Ala Arg His Cys
545 550 555 560
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Phe Gly Pro Glu Ala Asp Gln Cys Val Ala Cys Ala His Tyr Lys Asp
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740 745 750
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820 825 830
Met Ser Tyr Leu Glu Asp Val Arg Leu Val His Arg Asp Leu Ala Ala
835 840 845
Arg Asn Val Leu Val Lys Ser Pro Asn His Val Lys Ile Thr Asp Phe
850 855 860
Gly Leu Ala Arg Leu Leu Asp Ile Asp Glu Thr Glu Tyr His Ala Asp
865 870 875 880
Gly Gly Lys Val Pro Ile Lys Trp Met Ala Leu Glu Ser Ile Leu Arg
885 890 895
Arg Arg Phe Thr His Gln Ser Asp Val Trp Ser Tyr Gly Val Thr Val
900 905 910
Trp Glu Leu Met Thr Phe Gly Ala Lys Pro Tyr Asp Gly Ile Pro Ala
915 920 925
Arg Glu Ile Pro Asp Leu Leu Glu Lys Gly Glu Arg Leu Pro Gln Pro
930 935 940

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Ser Arg Met Ala Arg Asp Pro Gln Arg Phe Val Val Ile Gln Asn Glu
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Asp Leu Gly Pro Ala Ser Pro Leu Asp Ser Thr Phe Tyr Arg Ser Leu
        995                1000                1005
Leu Glu Asp Asp Asp Met Gly Asp Leu Val Asp Ala Glu Glu Tyr Leu
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Val Pro Gln Gln Gly Phe Phe Cys Pro Asp Pro Ala Pro Gly Ala Gly
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Gly Asp Leu Thr Leu Gly Leu Glu Pro Ser Glu Gln Glu Ala Pro Arg
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Arg Pro Lys Thr Leu Ser Pro Gly Lys Asn Gly Val Val Lys Asp Val
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Phe Ala Phe Gly Gly Ala Val Glu Asn Pro Glu Tyr Leu Thr Pro Gln
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<212> PRT
<213> Drosophila melanogaster

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Thr Ser Lys Ser Leu Arg Thr Pro Ser Asn Met Phe Val Leu Asn Leu
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Ala Val Phe Asp Leu Ile Met Cys Leu Lys Ala Pro Ile Phe Asn Ser
100 105 110
Phe His Arg Gly Phe Ala Ile Tyr Leu Gly Asn Thr Trp Cys Gln Ile
115 120 125
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130 135 140
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145 150 155 160
Arg Asn Met Thr Phe Thr Lys Ala Val Ile Met Asn Ile Ile Ile Trp
165 170 175
Leu Tyr Cys Thr Pro Trp Val Val Leu Pro Leu Thr Gln Phe Trp Asp
180 185 190
Arg Phe Val Pro Glu Gly Tyr Leu Thr Ser Cys Ser Phe Asp Tyr Leu
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Ser Asp Asn Phe Asp Thr Arg Leu Phe Val Gly Thr Ile Phe Phe Phe
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Ser Phe Val Cys Pro Thr Leu Met Ile Leu Tyr Tyr Tyr Ser Gln Ile
225 230 235 240
Val Gly His Val Phe Ser His Glu Lys Ala Leu Arg Glu Gln Ala Lys
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    50                  55                  60
Leu Pro Thr Asn Ala Ser Leu Ser Phe Leu Gln Asp Ile Gln Glu Val
65                  70                  75                  80
Gln Gly Tyr Val Leu Ile Ala His Asn Gln Val Arg Gln Val Pro Leu
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Gln Arg Leu Arg Ile Val Arg Gly Thr Gln Leu Phe Glu Asp Asn Tyr
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Ala Leu Ala Val Leu Asp Asn Gly Asp Pro Leu Asn Asn Thr Thr Pro
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Val Thr Gly Ala Ser Pro Gly Gly Leu Arg Glu Leu Gln Leu Arg Ser
    130                 135                 140
Leu Thr Glu Ile Leu Lys Gly Gly Val Leu Ile Gln Arg Asn Pro Gln
145                 150                 155                 160
Leu Cys Tyr Gln Asp Thr Ile Leu Trp Lys Asp Ile Phe His Lys Asn
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<212> DNA
<213> Homo sapiens

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<212> PRT
<213> Mus musculus

<400> 11

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			20					25					30		
Trp	Thr	Pro	Gly	Leu	Thr	His	Asn	Ala	Ser	Leu	Tyr	Cys	Ala	Ser	Ile
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Ile	Leu	Lys	Asn	Thr	Met	Gly	Leu	Ala	Ile	Leu	Ile	Phe	Val	Thr	Val
	50					55					60				
Leu	Leu	Ile	Ser	Asp	Ala	Val	Ser	Val	Glu	Thr	Gln	Ala	Tyr	Phe	Asn
65					70					75					80
Gly	Thr	Ala	Tyr	Leu	Pro	Cys	Pro	Phe	Thr	Lys	Ala	Gln	Asn	Ile	Ser
				85					90					95	
Leu	Ser	Glu	Leu	Val	Val	Phe	Trp	Gln	Asp	Gln	Gln	Lys	Leu	Val	Leu
			100					105					110		
Tyr	Glu	His	Tyr	Leu	Gly	Thr	Glu	Lys	Leu	Asp	Ser	Val	Asn	Ala	Lys
		115					120					125			
Tyr	Leu	Gly	Arg	Thr	Ser	Phe	Asp	Arg	Asn	Asn	Trp	Thr	Leu	Arg	Leu
	130					135					140				
His	Asn	Val	Gln	Ile	Lys	Asp	Met	Gly	Ser	Tyr	Asp	Cys	Phe	Ile	Gln
145					150					155					160
Lys	Lys	Pro	Pro	Thr	Gly	Ser	Ile	Ile	Leu	Gln	Gln	Thr	Leu	Thr	Glu
				165					170					175	
Leu	Ser	Val	Ile	Ala	Asn	Phe	Ser	Glu	Pro	Glu	Ile	Lys	Leu	Ala	Gln
			180					185					190		
Asn	Val	Thr	Gly	Asn	Ser	Gly	Ile	Asn	Leu	Thr	Cys	Thr	Ser	Lys	Gln
		195					200					205			
Gly	His	Pro	Lys	Pro	Lys	Lys	Met	Tyr	Phe	Leu	Ile	Thr	Asn	Ser	Thr
	210					215					220				
Asn	Glu	Tyr	Gly	Asp	Asn	Met	Gln	Ile	Ser	Gln	Asp	Asn	Val	Thr	Glu
225					230					235					240
Leu	Phe	Ser	Ile	Ser	Asn	Ser	Leu	Ser	Leu	Ser	Phe	Pro	Asp	Gly	Val
				245					250					255	
Trp	His	Met	Thr	Val	Val	Cys	Val	Leu	Glu	Thr	Glu	Ser	Met	Lys	Ile
			260					265					270		

Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr
275 280 285
Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val
290 295 300
Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg
305 310 315 320
Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg
325 330 335
Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys
340 345 350
Pro Asn Ala Glu
355

<210> 12
<211> 356
<212> PRT
<213> Mus musculus

<400> 12
Met Ala Lys Thr Ile Arg Arg Leu Ser Val Ala Phe Leu Thr Leu Ser
1 5 10 15
Asp Arg Gly Pro His Tyr Lys Ile Leu Leu Pro Leu Pro His Lys Gly
20 25 30
Trp Thr Pro Gly Leu Thr His Asn Ala Ser Leu Tyr Cys Ala Ser Ile
35 40 45
Ile Leu Lys Asn Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr Val
50 55 60
Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe Asn
65 70 75 80
Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile Ser
85 90 95
Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val Leu
100 105 110
Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala Lys
115 120 125
Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg Leu
130 135 140
His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile Gln
145 150 155 160
Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr Glu
165 170 175
Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala Gln
180 185 190
Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys Gln
195 200 205
Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser Thr
210 215 220
Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr Glu
225 230 235 240
Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly Val
245 250 255
Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys Ile
260 265 270
Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr

```
        275                 280                 285
Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val
    290                 295                 300
Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg
305                 310                 315                 320
Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg
                325                 330                 335
Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys
            340                 345                 350
Pro Asn Ala Glu
        355
```

<210> 13
<211> 309
<212> PRT
<213> Mus musculus

<400> 13

```
Met Asp Pro Arg Cys Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr
 1               5                  10                  15
Val Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe
            20                  25                  30
Asn Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile
        35                  40                  45
Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val
    50                  55                  60
Leu Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala
65                  70                  75                  80
Lys Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg
                85                  90                  95
Leu His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile
            100                 105                 110
Gln Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr
        115                 120                 125
Glu Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala
    130                 135                 140
Gln Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys
145                 150                 155                 160
Gln Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Asn
                165                 170                 175
Thr Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr
            180                 185                 190
Glu Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly
        195                 200                 205
Val Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys
    210                 215                 220
Ile Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln
225                 230                 235                 240
Thr Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu
                245                 250                 255
Val Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser
            260                 265                 270
Arg Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp
        275                 280                 285
```

Arg Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala
290 295 300
Lys Pro Asn Ala Glu
305

<210> 14
<211> 314
<212> PRT
<213> Mus musculus

<400> 14
Met Tyr Val Ile Lys Thr Cys Ala Thr Cys Thr Met Gly Leu Ala Ile
1 5 10 15
Leu Ile Phe Val Thr Val Leu Leu Ile Ser Asp Ala Val Ser Val Glu
20 25 30
Thr Gln Ala Tyr Phe Asn Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr
35 40 45
Lys Ala Gln Asn Ile Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp
50 55 60
Gln Glu Lys Leu Val Leu Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu
65 70 75 80
Asp Ser Val Asn Ala Lys Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn
85 90 95
Asn Trp Thr Leu Arg Leu His Asn Val Gln Ile Lys Asp Met Gly Ser
100 105 110
Tyr Asp Cys Phe Ile Gln Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu
115 120 125
Gln Glu Thr Leu Thr Glu Leu Ser Val Ile Ala Asn Phe Ser Glu Pro
130 135 140
Glu Ile Lys Leu Ala Gln Asn Val Thr Gly Asn Ser Gly Ile Asn Leu
145 150 155 160
Thr Cys Thr Ser Lys Gln Gly His Pro Lys Pro Lys Lys Met Tyr Phe
165 170 175
Leu Ile Thr Asn Ser Thr Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser
180 185 190
Gln Asp Asn Val Thr Glu Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu
195 200 205
Ser Phe Pro Asp Gly Val Trp His Met Thr Val Val Cys Val Leu Glu
210 215 220
Thr Glu Ser Met Lys Ile Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu
225 230 235 240
Phe Pro Ser Pro Gln Thr Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr
245 250 255
Val Ala Leu Leu Leu Val Met Leu Leu Ile Ile Val Cys His Lys Lys
260 265 270
Pro Asn Gln Pro Ser Arg Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg
275 280 285
Asp Ser Asn Ala Asp Arg Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro
290 295 300
Gln Ile Ala Ser Ala Lys Pro Asn Ala Glu
305 310

<210> 15
<211> 303

<212> PRT
<213> Mus musculus

<400> 15
Met Gly Leu Ala Ile Leu Ile Phe Val Thr Val Leu Leu Ile Ser Asp
1 5 10 15
Ala Val Ser Val Glu Thr Gln Ala Tyr Phe Asn Gly Thr Ala Tyr Leu
20 25 30
Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile Ser Leu Ser Glu Leu Val
35 40 45
Val Phe Trp Gln Asp Gln Gln Lys Leu Val Leu Tyr Glu His Tyr Leu
50 55 60
Gly Thr Glu Lys Leu Asp Ser Val Asn Ala Lys Tyr Leu Gly Arg Thr
65 70 75 80
Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg Leu His Asn Val Gln Ile
85 90 95
Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile Gln Lys Lys Pro Pro Thr
100 105 110
Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr Glu Leu Ser Val Ile Ala
115 120 125
Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala Gln Asn Val Thr Gly Asn
130 135 140
Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys Gln Gly His Pro Lys Pro
145 150 155 160
Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser Thr Asn Glu Tyr Gly Asp
165 170 175
Asn Met Gln Ile Ser Gln Asp Asn Val Thr Glu Leu Phe Ser Ile Ser
180 185 190
Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly Val Trp His Met Thr Val
195 200 205
Val Cys Val Leu Glu Thr Glu Ser Met Lys Ile Ser Ser Lys Pro Leu
210 215 220
Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr Tyr Trp Lys Glu Ile
225 230 235 240
Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val Met Leu Leu Ile Ile
245 250 255
Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg Pro Ser Asn Thr Ala
260 265 270
Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg Glu Thr Ile Asn Leu
275 280 285
Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys Pro Asn Ala Glu
290 295 300

<210> 16
<211> 356
<212> PRT
<213> Mus musculus

<400> 16
Met Ala Lys Thr Ile Arg Arg Leu Ser Val Ala Phe Leu Thr Leu Ser
1 5 10 15
Asp Arg Gly Pro His Tyr Lys Ile Leu Leu Pro Leu Pro His Lys Gly
20 25 30
Trp Thr Pro Gly Leu Thr His Asn Ala Ser Leu Tyr Cys Ala Ser Ile

```
         35                  40                  45
Ile Leu Lys Asn Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr Val
    50                  55                  60
Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe Asn
65                  70                  75                  80
Gly Thr Ala Tyr Leu Pro Lys Pro Phe Thr Lys Ala Gln Asn Ile Ser
                85                  90                  95
Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val Leu
            100                 105                 110
Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala Lys
        115                 120                 125
Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg Leu
    130                 135                 140
His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Lys Phe Ile Gln
145                 150                 155                 160
Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr Glu
                165                 170                 175
Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala Gln
            180                 185                 190
Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys Gln
        195                 200                 205
Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser Thr
    210                 215                 220
Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr Glu
225                 230                 235                 240
Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly Val
                245                 250                 255
Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys Ile
            260                 265                 270
Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr
        275                 280                 285
Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val
    290                 295                 300
Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg
305                 310                 315                 320
Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg
                325                 330                 335
Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys
            340                 345                 350
Pro Asn Ala Glu
        355
```

<210> 17
<211> 356
<212> PRT
<213> Mus musculus

<400> 17

```
Met Ala Lys Thr Ile Arg Arg Leu Ser Val Ala Phe Leu Thr Leu Ser
 1               5                  10                  15
Asp Arg Gly Pro His Tyr Lys Ile Leu Leu Pro Leu Pro His Lys Gly
            20                  25                  30
Trp Thr Pro Gly Leu Thr His Asn Ala Ser Leu Tyr Cys Ala Ser Ile
        35                  40                  45
```

```
Ile Leu Lys Asn Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr Val
    50                  55                  60
Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe Asn
65                  70                  75                  80
Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile Ser
                85                  90                  95
Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val Leu
            100                 105                 110
Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala Lys
        115                 120                 125
Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg Leu
    130                 135                 140
His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile Gln
145                 150                 155                 160
Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr Glu
                165                 170                 175
Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala Gln
            180                 185                 190
Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys Gln
        195                 200                 205
Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser Thr
    210                 215                 220
Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr Glu
225                 230                 235                 240
Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly Val
                245                 250                 255
Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys Ile
            260                 265                 270
Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr
        275                 280                 285
Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val
    290                 295                 300
Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg
305                 310                 315                 320
Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg
                325                 330                 335
Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys
            340                 345                 350
Pro Asn Ala Glu
        355

<210> 18
<211> 309
<212> PRT
<213> Mus musculus

<400> 18
Met Asp Pro Arg Cys Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr
 1               5                  10                  15
Val Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe
            20                  25                  30
Asn Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile
        35                  40                  45
Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val
```

```
     50                  55                  60
Leu Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala
65                  70                  75                  80
Lys Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg
                85                  90                  95
Leu His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile
            100                 105                 110
Gln Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr
        115                 120                 125
Glu Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala
    130                 135                 140
Gln Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys
145                 150                 155                 160
Gln Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser
                165                 170                 175
Thr Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr
            180                 185                 190
Glu Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly
        195                 200                 205
Val Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys
    210                 215                 220
Ile Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln
225                 230                 235                 240
Thr Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu
                245                 250                 255
Val Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser
            260                 265                 270
Arg Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp
        275                 280                 285
Arg Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala
    290                 295                 300
Lys Pro Asn Ala Glu
305

(2) 10 - 19
(2) 11 - 314
(2) 12 - PRT
(2) 13 - Mus musculus

(4)00 - 19
Met Tyr Val Ile Lys Thr Cys Ala Thr Cys Thr Met Gly Leu Ala Ile
 1               5                  10                  15
Leu Ile Phe Val Thr Val Leu Leu Ile Ser Asp Ala Val Ser Val Glu
            20                  25                  30
Thr Gln Ala Tyr Phe Asn Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr
        35                  40                  45
Lys Ala Gln Asn Ile Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp
    50                  55                  60
Gln Gln Lys Leu Val Leu Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu
65                  70                  75                  80
Asp Ser Val Asn Ala Lys Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn
                85                  90                  95
Asn Trp Thr Leu Arg Leu His Asn Val Gln Ile Lys Asp Met Gly Ser
            100                 105                 110
```

Tyr Asp Cys Phe Ile Gln Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu
115 170 175
Gln Gln Thr Leu Thr Glu Leu Ser Val Ile Ala Asn Phe Ser Glu Pro
130 135 140
Glu Ile Lys Leu Ala Gln Asn Val Thr Gly Asn Ser Gly Ile Asn Leu
145 150 155 160
Thr Cys Thr Ser Lys Gln Gly His Pro Lys Pro Lys Lys Met Tyr Phe
165 170 175
Leu Ile Thr Asn Ser Thr Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser
180 185 190
Gln Asp Asn Val Thr Glu Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu
195 200 205
Ser Phe Pro Asp Gly Val Trp His Met Thr Val Val Cys Val Leu Glu
210 215 220
Thr Glu Ser Met Lys Ile Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu
225 230 235 240
Phe Pro Ser Pro Gln Thr Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr
245 250 255
Val Ala Leu Leu Leu Val Met Leu Leu Ile Ile Val Cys His Lys Lys
260 265 270
Pro Asn Gln Pro Ser Arg Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg
275 280 285
Asp Ser Asn Ala Asp Arg Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro
290 295 300
Gln Ile Ala Ser Ala Lys Pro Asn Ala Glu
305 310

<210> 10
<211> 303
<212> PRT
<213> Mus musculus

<400> 10
Met Gly Leu Ala Ile Leu Ile Phe Val Thr Val Leu Leu Ile Ser Asp
1 5 10 15
Ala Val Ser Val Glu Thr Gln Ala Tyr Phe Asn Gly Thr Ala Tyr Leu
20 25 30
Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile Ser Leu Ser Glu Leu Val
35 40 45
Val Phe Trp Gln Asp Gln Gln Lys Leu Val Leu Tyr Glu His Tyr Leu
50 55 60
Gly Thr Glu Lys Leu Asp Ser Val Asn Ala Lys Tyr Leu Gly Arg Thr
65 70 75 80
Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg Leu His Asn Val Gln Ile
85 90 95
Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile Gln Lys Lys Pro Pro Thr
100 105 110
Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr Glu Leu Ser Val Ile Ala
115 120 125
Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala Gln Asn Val Thr Gly Asn
130 135 140
Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys Gln Gly His Pro Lys Pro
145 150 155 160
Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser Thr Asn Glu Tyr Gly Asp

```
                165                 170                 175
Asn Met Gln Ile Ser Gln Asp Asn Val Thr Glu Leu Phe Ser Ile Ser
            180                 185                 190
Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly Val Trp His Met Thr Val
        195                 200                 205
Val Cys Val Leu Glu Thr Glu Ser Met Lys Ile Ser Ser Lys Pro Leu
    210                 215                 220
Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln Thr Tyr Trp Lys Glu Ile
225                 230                 235                 240
Thr Ala Ser Val Thr Val Ala Leu Leu Leu Val Met Leu Leu Ile Ile
                245                 250                 255
Val Cys His Lys Lys Pro Asn Gln Pro Ser Arg Pro Ser Asn Thr Ala
            260                 265                 270
Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp Arg Glu Thr Ile Asn Leu
        275                 280                 285
Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala Lys Pro Asn Ala Glu
    290                 295                 300
```

<210> 21
<211> 1424
<212> DNA
<213> Homo sapiens

<400> 21

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aggagcctta ggaggtacgg ggagctcgca aatactcctt ttggtttatt cttaccacct      60
tgcttctgtg ttcctttggg atgctgctgt gcttatgcat ctggtctctt tttggagcta     120
cagtggacag gcatttgtga cagcactatg ggactgagta acattctctt tgtgatggcc     180
ttcctgtact ctggtgctgc tcctctgaag attcaagctt atttcaatga gactgcagac     240
ctgccaagcc aatttgcaaa ctctcaaaac caaagcctga gtgagctagt agtattttgg     300
caggacagg aaaacttggt tctgaatgag gtatacttag gcaaagagaa atttgacagt      360
gttcattcca agtatatggg ccgcacaagt tttgattcgg acagttggac cctgagactt     420
cacaatctcc agatcaagga caagggcttg tatcaatgta ttatccatca caaaaagccc     480
acaggaatga ttctgcatcc ccagatgaat tctgaactgt cagtgcttgc taacttcagt     540
cgacctgaaa tagtacgaat ttctaatata acagaaaatg tgtacataaa tttgacctgc     600
ttatctatac acggcttacc agaacctaag aagatgagtg ttttgctaag aacgaagaat     660
ttaactatcg agtatgatgg tattatgcag aaatctcaag ataatgtcac agaactgtac     720
gacgtttcca tcagcttgtc tgtttcattc cctgatgtta cgagcaatat gaccatcttc     780
tgtattctgg aaactgacaa gacggcggct ttatcttcac ctttctctat agagcttgag     840
gacctcagc ctcccagaga ccacattcct tggattacag ctgtacttcc aacagttatt      900
atatctatga tggttttctg tctaattcta tggaaatgga agaagaagaa gcggcctcgc     960
aactcttata aatgtggaac caacacaatg gagagggaag agagtgaaca gaccaagaaa    1020
agagaaaaaa tccatatacc tgaaagatct gatgaagccc agcgtgtttt taaaagttgg    1080
aagacattct catgcgacaa aagtgataca tgtttttaat taaagagtaa agcccatacа    1140
agtatttcatt ttttctaccc tttcctttgt aagttcctgg gcaacctttt tgatttcttc    1200
cagaaggcaa aaagacatta ccatgagtaa taaggggggt ccaggactcc ctctaagtgg    1260
aataccctcc ctgtaacttc agctctgctc cgtatgccaa gaggagactt taattctctt    1320
actgcttctt ttcacttcag agcacactta tgggccaagc ccagcttaat ggctcatgac    1380
ctggaaataa aatttaggac caataaaaaa aaaaaaaaaa aaaa                      1424
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<210> 22
<211> 213
<212> PRT
<213> Homo sapiens

<400> 22
Met Gly Leu Ser Asn Ile Leu Phe Val Met Ala Phe Leu Leu Ser Gly
1 5 10 15
Ala Ala Pro Leu Lys Ile Gln Ala Tyr Phe Asn Glu Thr Ala Asp Leu
20 25 30
Pro Cys Gln Phe Ala Asn Ser Gln Asn Gln Ser Leu Ser Glu Leu Val
35 40 45
Val Phe Trp Gln Asp Gln Glu Asn Leu Val Leu Asn Glu Val Tyr Leu
50 55 60
Gly Lys Glu Lys Phe Asp Ser Val His Ser Lys Tyr Met Gly Arg Thr
65 70 75 80
Ser Phe Asp Ser Asp Ser Trp Thr Leu Arg Leu His Asn Leu Gln Ile
85 90 95
Lys Asp Lys Gly Leu Tyr Gln Cys Ile Ile His His Lys Lys Pro Thr
100 105 110
Gly Met Ile Arg Ile His Gln Met Asn Ser Glu Leu Ser Val Leu Ala
115 120 125
Asn Phe Ser Gln Pro Glu Ile Val Pro Ile Ser Asn Ile Thr Glu Asn
130 135 140
Val Tyr Ile Asn Leu Thr Cys Ser Ser Ile His Gly Tyr Pro Glu Pro
145 150 155 160
Lys Lys Met Ser Val Leu Leu Arg Thr Lys Asn Ser Thr Ile Glu Tyr
165 170 175
Asp Gly Ile Met Gln Lys Ser Gln Asp Asn Val Thr Glu Leu Tyr Asp
180 185 190
Val Ser Ile Ser Leu Ser Val Ser Phe Pro Asp Val Thr Ser Asn Met
195 200 205
Thr Ile Phe Cys Ile Leu Glu Thr Asp Lys Thr Arg Leu Leu Ser Ser
210 215 220
Pro Phe Ser Ile Glu Leu Glu Asp Pro Gln Pro Pro Pro Asp His Ile
225 230 235 240
Pro Trp Ile Thr Ala Val Leu Pro Thr Val Ile Ile Cys Val Met Val
245 250 255
Phe Cys Leu Ile Leu Trp Lys Trp Lys Lys Lys Lys Arg Pro Arg Asn
260 265 270
Ser Tyr Lys Cys Gly Thr Asn Thr Met Glu Arg Glu Glu Ser Glu Gln
275 280 285
Thr Lys Lys Arg Glu Lys Ile His Ile Pro Glu Arg Ser Asp Glu Ala
290 295 300
Gln Arg Val Phe Lys Ser Ser Lys Thr Ser Ser Cys Asp Lys Ser Asp
305 310 315 320
Thr Cys Phe

<210> 23
<211> 1183
<212> DNA
<213> Mus musculus

<400> 23
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cctgtagacg tgttccagaa cttacggaag cacccacgat ggacccccaga tgcaccatgg 120
gcttggcaat ccttatcttt gtgacagtct tgctgatctc agatgctgtt tccgtggaga 180
cgcaagctta tttcaatggg actgcatatc tgccgtgccc atttacaaag gctcaaaaca 240

taagcctgag tgagctggta gtatttttgc aggaccagca aaagttggtt ctgtacgagc 360
actatttggg cacagagaaa cttgatagtg tgaatgccaa gtacctgggc cgcacgagct 420
ttgacaggaa caactggact ctacgacttc acaatgttca gatcaaggac atgggctggt 480
atgattgttt tatacaaaaa aagccaccca caggatcaat tatcctccaa cagacattaa 540
cagaactgtc agtgatcgcc aacttcagtg aacctgaaat aaaactggct cagaatgtaa 600
caggaaattc tgccataaat ttgacctgca cgtctaagca aagtcacccg aaacctaaga 660
agatgtattt tctgataact aattcaaata atgagtatgg tgataacatg cagatattac 720
aagataatgt cacagaactg ttcagtatct ccaacagcct ctctttttca ttccaggatg 780
gtgtggtggca tatgaccgtt gtgtgtgttc tggaaacgga gtcaatgaag atttcctcca 840
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cttcagttac tgtgggcctc ctcattgtga tgctgctcat cattgtatgt cacaagaagc 960
cgaattcagc tagcaggccc agcaacacag cctctaagtt agagcgggat agtaacgctg 1020
acagagagac tatcaacctg aaggaacttg aaccccaaat tgcttcagca aaaccaaatg 1080
cagagtgaag gcagtgagag cctgaggaaa gagttaaaaa ttgctttgcc tgaaataaga 1140
agtgcagagt ttttcagaat tcaaaaatgt tctcagctga ttggaatttt acagttgaat 1140
aattaaagaa caaaatacac aacagtgaaa aaaaaaaaaa aaa 1183

<210> 24
<211> 209
<212> PRT
<213> Mus musculus

<400> 24
Met Asp Pro Arg Cys Thr Met Gly Leu Ala Ile Leu Ile Phe Val Thr
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Val Leu Leu Ile Ser Asp Ala Val Ser Val Glu Thr Gln Ala Tyr Phe
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Asn Gly Thr Ala Tyr Leu Pro Cys Pro Phe Thr Lys Ala Gln Asn Ile
35 40 45
Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Gln Lys Leu Val
50 55 60
Leu Tyr Glu His Tyr Leu Gly Thr Glu Lys Leu Asp Ser Val Asn Ala
65 70 75 80
Lys Tyr Leu Gly Arg Thr Ser Phe Asp Arg Asn Asn Trp Thr Leu Arg
85 90 95
Leu His Asn Val Gln Ile Lys Asp Met Gly Ser Tyr Asp Cys Phe Ile
100 105 110
Gln Lys Lys Pro Pro Thr Gly Ser Ile Ile Leu Gln Gln Thr Leu Thr
115 120 125
Glu Leu Ser Val Ile Ala Asn Phe Ser Glu Pro Glu Ile Lys Leu Ala
130 135 140
Gln Asn Val Thr Gly Asn Ser Gly Ile Asn Leu Thr Cys Thr Ser Lys
145 150 155 160
Gln Gly His Pro Lys Pro Lys Lys Met Tyr Phe Leu Ile Thr Asn Ser
165 170 175
Thr Asn Glu Tyr Gly Asp Asn Met Gln Ile Ser Gln Asp Asn Val Thr
180 185 190
Glu Leu Phe Ser Ile Ser Asn Ser Leu Ser Leu Ser Phe Pro Asp Gly
195 200 205
Val Trp His Met Thr Val Val Cys Val Leu Glu Thr Glu Ser Met Lys
210 215 220
Ile Ser Ser Lys Pro Leu Asn Phe Thr Gln Glu Phe Pro Ser Pro Gln
225 230 235 240
Thr Tyr Trp Lys Glu Ile Thr Ala Ser Val Thr Val Ala Leu Leu Leu

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                245                 250                 255
Val Met Leu Leu Ile Ile Val Cys His Lys Lys Pro Asn Gln Pro Ser
            260                 265                 270
Arg Pro Ser Asn Thr Ala Ser Lys Leu Glu Arg Asp Ser Asn Ala Asp
        275                 280                 285
Arg Glu Thr Ile Asn Leu Lys Glu Leu Glu Pro Gln Ile Ala Ser Ala
    290                 295                 300
Lys Pro Asn Ala Glu
305
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<210> 15
<211> 1112
<212> DNA
<213> Homo sapiens

<400> 15

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gagtggcctc atttccagat attaggtcac agcagaagca gccaaaatgg atcccagtg      120
cactatgtga ctgagtaaca ttctctttgt gatggcctcc ctgctctctg gtgctgctcc      180
tctgaagatt ctagctcatt tcaatgagac tgcagaccag gcatgccaat ttgcaaactc      240
tcaaaacaaa agcctgagtg agctagtagt attttggcag gacgaggaaa acttggttct      300
gaatgaggta tacttaggca aagagaaatt tgacagtgtt cattccaagt atatgggccg      360
cacaagtttt gattcggaca gttggagcct gagacttcac aatcttcaga tcaaggacaa      420
ggcttgtat caatgtatca tcgatcagaa aaagccgcag ggaatgattc gcatccacca      480
gatgaatct gaactgtcag tgcttgctaa attcagtcaa cctgaaatag tagcaatttc      540
taatataaca gaaaatgtgt acataaattt gacctgctca tctatacacg gttacccaga      600
acctaagaag atgagtgttt tgctaagaac caagaattca actatcgagt atgatggtat      660
tatgcagaaa tttcaagata atgtcacaga actgtacgac gtttccatca gcttgctgct      720
tacattgcct gatgttacga gcaatatgac catcttctgt attctggaaa ctgacaagac      780
gaggctttta tcttcacctt tctctataga gcttgaggac cctcagcctc ccccagacca      840
catcctttgg attacagctg tattccaac agttattata tgtgtgatgg ttttctgtct      900
aattctatgg aaaatggaaga agaagaagcg gcctgcgcaa tctttataaat gtggaacaaa      960
cacaatgaag agggaaagaga gtgaacagac caagaaaaga gaaaaaatcc atatacctga     1020
aagatctgat gaagccagc gtgttttaa aagttcgaag acatcttcat gcgacaaaag     1080
tgatacatgt ttttaattaa agtgtaaagc cc                                  1112
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<210> 16
<211> 349
<212> PRT
<213> Homo sapiens

<400> 16

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Ala Phe Leu Leu Ser Gly Ala Ala Pro Leu Lys Ile Gln Ala Tyr Phe
            20                  25                  30
Asn Glu Thr Ala Asp Leu Pro Cys Gln Phe Ala Asn Ser Gln Asn Gln
        35                  40                  45
Ser Leu Ser Glu Leu Val Val Phe Trp Gln Asp Gln Glu Asn Leu Val
    50                  55                  60
Leu Asn Glu Val Tyr Leu Gly Lys Glu Lys Phe Asp Ser Val His Ser
65                  70                  75                  80
Lys Tyr Met Gly Arg Thr Ser Phe Asp Ser Asp Ser Trp Thr Leu Arg
                85                  90                  95
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Leu His Asn Leu Gln Ile Lys Asp Lys Gly Leu Tyr Gln Cys Ile Ile
100 105 110
His His Lys Lys Pro Thr Gly Met Ile Arg Ile His Gln Met Asn Ser
115 120 125
Glu Leu Ser Val Leu Ala Asn Phe Ser Gln Pro Glu Ile Val Pro Ile
130 135 140
Ser Asn Ile Thr Glu Asn Val Tyr Ile Asn Leu Thr Cys Ser Ser Ile
145 150 155 160
His Gly Tyr Pro Glu Pro Lys Lys Met Ser Val Leu Leu Arg Thr Lys
165 170 175
Asn Ser Thr Ile Glu Tyr Asp Gly Ile Met Gln Lys Ser Gln Asp Asn
180 185 190
Val Thr Glu Leu Tyr Asp Val Ser Ile Ser Leu Ser Val Ser Phe Pro
195 200 205
Asp Val Thr Ser Asn Met Thr Ile Phe Cys Ile Leu Glu Thr Asp Lys
210 215 220
Thr Arg Leu Leu Ser Ser Pro Phe Ser Ile Glu Leu Glu Asp Pro Gln
225 230 235 240
Pro Pro Pro Asp His Ile Pro Trp Ile Thr Ala Val Leu Pro Thr Val
245 250 255
Ile Ile Cys Val Met Val Phe Cys Leu Ile Leu Trp Lys Trp Lys Lys
260 265 270
Lys Lys Arg Pro Arg Asn Ser Tyr Lys Cys Gly Thr Asn Thr Met Glu
275 280 285
Arg Glu Glu Ser Glu Gln Thr Lys Lys Arg Glu Lys Ile His Ile Pro
290 295 300
Glu Arg Ser Asp Glu Ala Gln Arg Val Phe Lys Ser Ser Lys Thr Ser
305 310 315 320
Ser Cys Asp Lys Ser Asp Thr Cys Phe
325